

1 TO WHOM IT MAY CONCERN:

2

3 BE IT KNOWN THAT WE, TODD A. WILLIAMS, a
4 citizen of the United States of America, residing in
5 Laguna Niguel, in the County of Orange, State of
6 California, and PAUL B. SPECHT, a citizen of the United
7 States of America, residing in Willmette, in the County
8 of Cook, State of Illinois, have invented a new and
9 useful improvement in

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12 **SCRUBBING DEVICE ATTACHABLE TO A MOP**

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BACKGROUND OF THE INVENTION

This application claims priority from
provisional application Serial No. 60/429,220 filed
November 25, 2002.

This invention relates generally to surface
scrubbing and mopping, and more particularly to
provision of an attachment easily connectable to a mop,
to facilitate surface scrubbing.

There is need for improvements in surface
scrubbing and mopping whereby the two operations are
enabled by one hand manipulable apparatus, such as an
elongated mop handle. In particular there is need for
an attachment that carries surface scrubbing elements,
and which can easily and rapidly be connected to a mop,
and preferably to mops of different configurations at
the locations of mop connections to handles.

SUMMARY OF THE INVENTION

It is a major object of the invention to
provide method and apparatus meeting the above need.

Basically, the improved apparatus provides a mop with
surface scrubbing capability and that includes an
attachment for rigid connection to a mop, and which is

1 adapted to carry a surface scrubbing element or
2 elements. As will be seen, the attachment is
3 configured for clamping to the mop, at or near the mop
4 head, as by force exerted by the mop handle.

5 It is another object to provide an attachment
6 having a flange shaped tongue or plate to be clamped in
7 position between the end of the mop handle and head.

8 One of the following is also typically provided:

- 9 i) the tongue defines a hole to pass
10 the handle end, or to pass a
11 projection to which the handle end
12 fits,
- 13 ii) the tongue has a clampable portion
14 to be clamped in position adjacent
15 the handle and head,
- 16 iii) the attachment has two holes of
17 different sizes associated with the
18 tongue to selectively register with
19 different sized mop handles.

20 As will be seen, a foldable adapter in the
21 form of a flap may be provided, one of the holes to be
22 carried by the tongue and the second hole carried by
23 the flap, the holes being of different sizes, the
24 second hole registering with the first hole when the
25 flap is folded. Accordingly, the device can be

1 securely attached to mop handle ends of different sizes
2 that fit the holes of different sizes.

3 Yet another object is to provide apparatus as
4 referred to which includes a section carrying scrubbing
5 elements, that section having hinged operative
6 connection to the tongue. That connection may also
7 advantageously include a living hinge, molded in
8 position during plastic molding of the attachment, to
9 accommodate and facilitate flap folding. The scrubbing
10 elements may be carried by a pad which has attachment
11 to a plate portion of the section. Scrubbing bristles
12 may be fused in position to the plate portion, or other
13 carrier, as will be seen. The plate portion and pad
14 connection may be one of the following:

- 15 x₁) a bond,
- 16 x₂) an interfit connection,
- 17 x₃) projections, and apertures
18 receiving the projections, the
19 projections located on one of the
20 plate and pad, and the apertures
21 located in the other of the plate
22 and pad.

23 These and other objects and advantages of the
24 invention, as well as the details of an illustrative
25 embodiment, will be more fully understood from the
26 following specification and drawings, in which:

DRAWING DESCRIPTION

Fig. 1 is a perspective view of apparatus incorporating the invention;

Fig. 2 is an inverted perspective view of the Fig. 1 apparatus;

Fig. 3 is an end elevation of the Fig. 1 apparatus;

Fig. 4 is a view taken on lines 4-4 of Fig. 3;

Fig. 5 is a view like Fig. 4 but showing connection of the apparatus to another type mop;

Fig. 6 is a view like Fig. 5, but showing connection of the apparatus to yet another type mop;

Fig. 7 is a section taken on lines 7-7 of Fig. 6;

Fig. 8 is an end view of the Fig. 1 type apparatus in tilted position for floor scrubbing.;

Fig. 9 is a front perspective view of another form of apparatus incorporating the invention, and which is preferred;

Fig. 10 is a rear perspective view of the Fig. 9 apparatus;

1 Fig. 11 is an end elevation of the Fig. 9 and
2 10 apparatus, and also showing scrubbing pad attachment
3 to a plate section of that apparatus;

4 Fig. 12 is a view like Fig. 11, showing
5 another mode of scrubber attachment, the scrubber being
6 bristles;

7 Fig. 13 is a bottom view of the plate section
8 of the apparatus, to which the pad is attachable;

9 Fig. 14 is an end view showing mop connection
10 to the Fig. 11 device;

11 Fig. 15 is a frontal view of the Fig. 15
12 assembly;

13 Fig. 16 is a plan view taken on lines 16-16
14 of Fig. 15;

15 Figs. 17 and 17a are schematic views showing
16 registration of flap and tongue openings of different
17 sizes to accommodate different mop handles;

18 Fig. 18 is a frontal view of elements as seen
19 in Fig. 17; and

20 Fig. 19 is an end view of a modified mop
21 handle connection to attachment apparatus of the
22 general type seen in Figs. 1 and 9-11.

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24 **DETAILED DESCRIPTION**

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1 Fig. 1 is a perspective view showing
2 apparatus 10 for providing a mop with surface scrubbing
3 capability. It includes a surface scrubbing device 11
4 having an attachment 20 for rigid connection to a mop.
5 Device 11 includes a base 12 having a first section 12a
6 with a surface 12a' facing in a first direction 13a,
7 and a second section 12b with a surface 12b' facing in
8 a second direction 13b, those surfaces 12a and 12b
9 relatively angled at an obtuse angle α as seen in Fig.
10 3. Floor scrubbing elements, as for example bristle
11 groups 14a and 14b are carried to project from surfaces
12 12a' and 12b', as shown. Fig. 2 is another perspective
13 view of the apparatus 10 with projecting bristle groups
14 14a and 14b.

15 Attachment 20 includes a plate or plate
16 sections attached to the base 12. See plate section
17 20a attached to base section 12a, and plate section 20b
18 attached to base section 12b. Sections 20a and 12a may
19 be of one-piece construction, and sections 20b and 12b
20 may be of one-piece construction. A first fold 20c
21 connects sections 20a and 20b. The attachment includes
22 a tongue as at 20d projecting at an angle β from
23 section 20b at a fold connection 20d to section 20b.
24 Angle β may typically be about 90°. The tongue 20d
25 typically has an angled extension 20d'. The plate and

1 tongue may be integral, and non-metallic. The tongue
2 20d, by itself or with extension 20d' are adapted to be
3 clamped between a mop handle and a mop head. See for
4 example the handle 25 and the mop head 26 in the end
5 view of the apparatus 10 in Fig. 3. The mop is shown
6 to include mop strands 27 carried by the head which
7 extend adjacent to the base 12. Head 26 is positioned
8 or captivated in a corner zone 28 formed by one or both
9 plate sections 20b and 20d.

10 The tongue has a through opening or hole 30
11 through which the handle end, or the mop head is
12 received, to establish the connection of the handle to
13 the head. As shown in Fig. 3, the handle 25 has a
14 tapered end portion 25a which carries threads 32, and
15 sized to at least in part project through hole 30 and
16 screw into an interiorly threaded recess 26a in the mop
17 head 26. In this process, the elements are sized so
18 that the tongue becomes clamped or locked in position
19 adjacent or between the mop head and the handle. The
20 tongue 20d, base sections 20a and 20b, handle 25, and
21 mop head 26 are thereby easily assembled into an
22 interlocked unit, for floor scrubbing and/or mopping.
23 Scrubbing may be carried out as in Fig. 3 position,
24 with bristle group 14a engaging the floor surface 35,
25 or in Fig. 8 position, with bristles 14b engaging the
26 floor surface. The bristle ends may be fused to the

1 base sections, or otherwise connected to those
2 sections. See bristle supporting portions 14a' and
3 14b'.

4 Fig. 4 shows the completed assembly of
5 elements referred to above, in Figs. 1-3. Note the
6 clamping at 40 of the attachment 20, between the mop
7 head 26 and the handle end. The attachment can be
8 quickly attached to the mop, as by unscrewing handle 25
9 from mop head 26, inserting the handle end 25a through
10 hole 30 in the tongue, and then tightening the handle
11 end 25a into the head recess 26a.

12 Fig. 5 shows the attachment 20 connected to
13 another type mop 42. The mop head 43 carries a
14 projecting sleeve 44 that is inserted through hole 30
15 in 20d. The sleeve is internally threaded at 45 to
16 receive the threaded end 25a of the handle 25. Upon
17 tightening, a clamping sleeve 46 is urged downwardly by
18 the handle to telescopically fit about sleeve 44 and to
19 clamp at 47 against tongue 20d, to rigidly hold the
20 attachment 20 to the mop head 43.

21 In Figs. 6 and 7, the tongue 20d of the
22 attachment 20 is clamped between a traveling bar 60 of
23 the mop 61, and mop fixed structure 62. A thumb screw
24 63 advances and retracts bar 60. The mop includes a
25 frame 64 and a handle 65.

1 Water slots as seen at 70 in Fig. 1 may be
2 used to drain water.

3 Fig. 8 shows the Fig. 1 apparatus 10 in
4 tilted position for floor scrubbing by bristle group
5 14b engagement with surface 35. Note handle 25
6 extending substantially horizontally. Plate section
7 20b also extends substantially horizontally. Mop
8 strands 27 also engage the surface 35.

9 Figs. 9-16 show a modified attachment
10 apparatus 100 for providing a mop with surface
11 scrubbing capability. Apparatus 100 facilitates
12 connection of a mop 101 to a mop handle 125; and a
13 surface scrubbing device 110 is attached to, or
14 attachable to, the apparatus 100. See Fig. 14.

15 As seen in Fig. 11, device 110 includes a
16 base 112 in the form of a plate, having a first section
17 112a with a surface 112a' facing in direction 113a; and
18 a second section 112b with a surface 112b' facing in a
19 second direction 113b. Surfaces 112a' and 112b' are
20 relatively angled at an obtuse angle Δ as seen in Fig.
21 11. A floor scrubbing element, as for example scrub
22 pad 114a is carried by section 112a to project away
23 from surface 112a', as seen in Fig. 11. Pad 114a may be
24 attached by VELCRO layer or layers 114b and 114b' to a
25 plate 154, which is in turn attached via projections

1 153 to 112. See openings 150. Pad 114a may for
2 example be a pad produced by Glit/Microtron, a Katy
3 Company, Item 20967, 20968 or 20969. A reduced
4 thickness living (flexible) hinge may be provided at
5 112c, as by plastic molding, to connect section 112a
6 with extension 112a' which is connected to 112b at
7 corner 112d.

8 Attachment 120 includes a plate or plate
9 section attached to base 112. See plate section 120b
10 attached to or integral with 112b. Stiffener ribs 202
11 may be provided to stiffen that corner attachment,
12 fixing angle Δ . Base 112 and plate section 120b may
13 be of one-piece, plastic molded construction, whereby
14 plate or plate section 120b is well adapted to support
15 or connect to the mop head, and base 112 is well
16 adapted to support or carry a scrubbing pad 114a, or
17 scrubbing bristles, as referred to, force being
18 transmitted from the handle to the bristles (during
19 scrubbing) via the plate 120b and the base 112, of
20 fixed relative angularity as referred to, stiffeners
21 202 assisting in fixing that angularity.

22 Plate or plate section 120b contains a
23 through opening or hole 130 through which the handle
24 end is received to establish connection of the handle
25 125 to the mop head. See Figs. 9, 10, and 14. Hole

1 130 is located about mid-way between opposite ends
2 120e and 120f of the rigid plate 120, as seen in Figs.
3 9 and 10. The dimension between ends 120e and 120f is
4 preferably between 1 inch and 15 inches.

5 Fig. 17a shows the handle tapered end portion
6 125a, with threading 132, sized to project through hole
7 130 and screw into an interiorly threaded recess 126a
8 in the mop head 126. The flange or shoulder 133 on the
9 handle clamps the plate 120 to the mop head.

10 Figs. 12 and 14 show bristle groups 164
11 having ends 164a as an alternate scrubbing device.
12 The bristle ends can be fuse connected to 112 and
13 bristles 164 and plate 112 may consist of
14 polypropylene. Bristles can also be carried by
15 extension 112a''.
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17 In accordance with one important aspect of
18 the invention, two holes of different sizes or
19 diameters are associated with the plate section 120,
20 (or otherwise designated as a form of tongue), to
21 selectively and alternatively register with different
22 size (or diameter) mop handles. A first hole may be
23 the described hole 130 to receive a relatively larger
24 size mop handle end 132; and a second hole such as is
25 shown at 140, is alternatively usable with a second and
26 smaller size mop handle end seen at 141 in Figs. 17 and
18. Hole 140 is provided as a through hole in an

1 adapter in the form of a flap 142 foldable downwardly
2 into position adjacent plate 120, as seen in Fig. 17.
3 Hole 140 is of smaller diameter than hole
4 130, but it comes into coaxial registration with hole
5 130, as seen in Fig. 18. To assure or assist this flap
6 positioning, an annular boss 143 is provided on the
7 flap, and it fits into hole 130 to center hole 140
8 relative to hole 130. The mop handle 141 also has
9 reduced diameter threading 144 to screw into the
10 alternate mop head 145, as shown, and a clamp-up
11 relationship is achieved as respects the mop handle,
12 the plate 120 and the mop head. A living hinge 142a
13 may be provided to foldably connect the flap 142 to
14 plate section 120b. The handle clamps to the flap 142
15 at 133a in Fig. 18. See also Figs. 15 and 16.

16 Fig. 11 shows apertures 150 in base 112 to
17 receive projections 153 carried by a plate 154. Fig. 12
18 shows another form of connection of a bristle plate 154
19 to base 112, wherein projections 157 extend through
20 apertures 170 in base 112.

21 Fig. 19 shows an adjustable claw 160
22 connection of the mop handle 161 to the mop head 162.
23 Claw finger or fingers 160a penetrate the mop head at
24 its side 162a, and claw finger or fingers 160b grip the
25 base 112 of the attachment 120, as shown. A rotor 164

1 on the handle 161 is rotatable to adjust claw gripping.

2 Bristles 184 are fused to plate section 112.

3 Fig. 13 shows a form of a base 212, like 112, with
4 apertures 213 to receive projections on a bristle
5 carrying plate.

6 The devices of the invention will also enable
7 normal mop wringing, as by use of a mop bucket wringer,
8 for example of side press or down press type. Such
9 device 100 may consist of molded plastic material to
10 weigh between 1 and 32 ounces.

11 Further features and elements are listed in
12 the attached claims, and/or shown in the drawings.

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